International Conference on

**Pensions in Asia: Incentives, Compliance and Their Role in Retirement**

# Taiwan:
# Compulsory Occupational Pensions Still Dominate

By

**Shean-Bii Chiu**

**Professor and Chairman,**

**Department of Finance, National Taiwan University**

E-mail: chiushnb@mba.ntu.edu.tw

Tel:+886-2-2366-1255 Fax:+886-2-2366-1255

Organised

by

PIE and COE/RES, Hitotsubashi University

Hitotsubashi Collaboration Center, Tokyo, Japan, 23-24 February 2004

# Abstract

The compulsory occupational pension and insurance system, along with personal savings and family supports, form the backbone of social security in Taiwan. Due to the relatively low contribution ratio, public sector pensions, as well as private sector pensions, are seriously under-funded, and this will lay enormous pressure on future government budgets if reforms are not implemented soon. The new Labor Pension Bill will make drastic policy shifts from defined benefit to defined contribution, from non-portable to portable, and finally from government management of funds to partial private management.

Taiwan

1 Introduction

The compulsory occupational pension and insurance system, along with personal savings and family supports, form the backbone of social security in Taiwan. While a new national pension system covering the basic needs of the elderly has been considered since 1993, the first pillar has not been the center of discussion until recently. Currently, the income replacement ratios for government employees often exceed 80%. On the other hand, employees from the private sector receive much lower pension payments, not to mention they are also subject to considerable employer default risk.

The new Labor Pension Bill will make drastic policy shifts from defined benefit to defined contribution, from non-portable to portable, and finally from government management of funds to partial private management. Nevertheless, due to the relatively low contribution ratio, public sector pensions, as well as private sector pensions, are seriously under-funded, and this will lay enormous pressure on future government budgets if reforms are not implemented soon.

2 Historical Background

A series of compulsory occupational insurance and pension laws have been enacted since 1950. In 2002, over 80% of the working population are covered by one or more social insurance or pension plans.

1950 Military Personnel Insurance
1958 Labor Insurance Act
1958 Public Servant Insurance Act
1985 Labor Standards Law
1980 Private School Teachers Insurance Act
1985 Farmers Insurance Act
1994 National Health Insurance Act
1993 Civil Servants Retirement Law and Civil Service Pension Law
2001 Draft of the Statute of Labor Pension passed by the Executive Yuan
2003 Revised Draft of the Statute passed by the Labor, Welfare and Environment Committee of the Legislative Yuan

[Insert Table 1]

3 Current Scheme

3.1 The Public Sector

Working in the public sector is considered by most in Taiwan as a stable, low-risk life style. While income on the job is mediocre, its retirement pension is very attractive. The combination of the **Civil Servants Pension and the Government Employees and School Teachers Insurance** provides an income replacement ratio greater than 80% for a government employee serving 35 years before retirement. For one retiring at around 50 years old with 25 years of public service history, he or she can often find new jobs and enjoy double income.

***Civil Servants Pension***

The monthly contributions to the **Public Service Pension Fund (PSPF)** are set by law to be between 8 to 12 percent of the doubled amount of the basis salaries (equivalent to 100 to 120 percent of the full salary, hereafter base amount) from its participants. The contribution rate was 8% before January 2002. The current rate is 8.8%, and will be raised gradually to 12% by year 2006. The participants pay 35 percent of the total contribution, while the government, the employer, pays the remaining 65 percent. The official retirement age is 65. A participant who has served for 25 years or more can apply for an early retirement. If his or her service exceeds 15 years, a participant can choose among three forms of pension payments: lump-sum payment, monthly payment, or mixed pension. A participant with less than 15 years of service is only entitled to the lump-sum payment. For lump-sum payment, 150% of the base amount would be disbursed for every year of service, with a maximum of 35 years, or 53 base amounts. Under monthly payment, the retiree, for every year of service, is entitled to 2% of the base amount of an official with identical rank on the effective retirement date. The maximum is 35 years, or

70% of the base amount. Since the monthly payments are linked to the salary of current workers, the pension is effectively inflation hedged. If the mixed pension is chosen, a portion of pension is paid lump-sum, and the remaining is paid monthly. If the retiree who opts for monthly pension or mixed pension dies, a lump-sum of survivor annuity will be paid to the bereaved. Since the expected present value of the monthly pension is much higher than the lump-sum pension, over 90 percent of the retirees have chosen the monthly or mixed pensions.

Table 2 calculates the actuarially fair contribution ratios under different scenarios. As shown, if 0% of the plan's original participants choose monthly payment (i.e., they all choose lump-sum payment), the actuarially fair contribution ratio is 12.7%. On the other hand, if everyone chooses monthly payment, the fair rate should be 35.2%. Numbers for new participants shows similar results.

[Insert Table 2]

***Government Employees' and School Staffs' Insurance***

In addition to public servants and public school teachers, private school teachers are also included in the Government Employees' and School Staffs' Insurance. The insurance covers disability, death, and old-age pension. The insurance premium is set by law to be 4.5% to 9% of the insured salary. The current rate is 7.15%. A plan participant pays 35 percent of the premium, while government and the employer pay the remaining 65 percent. The old-age pension is calculated as 120% of monthly insured salary times the year of service, with a maximum of 36 month. It is paid in lump-sum when a participant retires.

3.2 The Private Sector

Employees in the private sector, except for farmers, are required by law to participate in the Labor Insurance. For Labor Insurance, an employer's responsibility is to contribute to the Labor Insurance Fund as required. All the payments to the insured labors will come from this Fund. Currently, compliance with the Labor Insurance System is nearly 100 percent.

In addition, employers are required by law to put a portion of their employees' salaries to the Labor Pension Fund as reserves for future pensions as employees retire. Both Labor Insurance and Labor Pension are defined benefit plans, but the former is portable, while the latter is not. If a firm's accumulated contributions and investment returns are not sufficient to pay the pension specified by the Labor Standard Law when its employees retire, the employer bears the ultimate responsibility. Due to various problems of the system, nearly 80% of the employers (who hire 60% of the total labor in Taiwan) do not contribute to the Labor Pension Fund.

***Labor Insurance***

Started in 1950, Labor Insurance is the earliest social insurance in Taiwan. Every private establishment with 5 or more employees is required to participate in the plan. Around 7.5 million people were insured by the Labor Insurance at the end of 2002. The plan insures against maternity, disability, injury, death, unemployment. It also provides an old-age pension. Health insurance used to be one of the major tasks of the Labor Insurance, but this has been taken over by the National Health Insurance since 1995. The insurance premium is set by law to be 6.5% to 11% of the insured salary. The current rate is 5.5% for those who are not eligible for unemployment insurance and 6.5% for the others. Employees pay a mere 20% of the premium, employers pay 70%, and the government pays the other 10%. An insured person who has been insured for 25 years and reached the age of 50, or who has been insured for 15 years and reached the age of 55 is eligible for the old-age pension. Each of the first 15 coverage years will be disbursed 1 average monthly insured salary, and each of the additional years will be paid 2 average monthly salaries, with a maximum of 45 months. The payment is lump-sum, but it is expected to convert to an annuity before the end of 2004.

***Labor Pension***

The Labor Pension Fund was established following the 1984 enactment of the Labor Standards Law, which stipulates minimum standards of labor conditions and protects workers rights and interests. The law applies to all forms of employee-employer relationships in the private sector. Retirement payment is one of the employer's obligations under the Law. To obtain the retirement payment, a worker must have worked for 25 years or have worked for 15 years and reached the age of 55 under the same employer. The retirement benefit is neither portable nor vested.

However, the average life of firms in Taiwan is 13 years, while employees' average length of service in the same firm is 8.6 years. Those who are employed in large enterprises, especially state-owned enterprises, are most likely to fulfill the retirement requirements, and really receive the retirement payments. For employees of small firms, retirement benefits are more like pies painted on the wall. You can see them, but you can not eat them. Under this plan, a worker qualified for retirement payments shall receive two months' salary, based on the average monthly salary over the six months prior to his or her retirement, for each year of service. For service years in excess of 15 years, however, each year shall receive 1 month salary. The maximum payment is 45 month salary. To fund the retirement obligations, an employer must deposit an amount from 2% to 15% of employees' salary to the Labor Pension Fund each month, as a reserve for future payments. The Fund maintains separate accounts for participating firms. When a worker retires, the retirement payment is drawn from his or her firm's account. If the money left in an account is not sufficient, the employer is responsible for the balance.

### 3.3 Welfare Allowance Programs

Welfare Allowance programs provide monthly allowances for senior citizens. Funding for these programs is from the regular government budget. The motivations of these programs, however, were twofold: social security and political consideration. While these allowances undoubtedly offer a shield to protect the basic living needs of destitute senior citizens, they are often criticized for also including the wealthy. Critiques of these programs argue that these resources can be obviously employed more effectively elsewhere. Although many people consider these allowances vote-buying, very few politicians are willing to speak against them.

#### *Old-Age Farmers' Allowance Program*

The Temporary Act for the Old-Age Farmers' Allowance Program was promulgated in 1995. Qualified old-age farmers can receive a monthly allowance of NT$3,000. The Act was later revised to include old-age fishermen. The amount of the allowance is increased to NT$4,000 from January 2004.[1][1]

#### *Old-Age Citizens' Welfare Allowance*

The Temporary Act of Old-Age Citizens' Welfare Allowance was enacted in 2002. Citizens over 65 years old can apply for a NT$3,000 monthly allowance regardless of their income and wealth level.

## 4 Asset Allocations and Investment Performances of Pension Funds

All compulsory occupational pension and insurance funds are managed by government entities. The asset allocation decisions of the Labor Insurance Fund and the Labor Pension Fund must follow specific guidelines. For example, both funds have a 30% limit on assets invested in equity. Public Service Pension Fund, which was established in 1995, the latest of these funds, applies the prudent-men rule when making asset allocation decisions. Both the Labor Pension Fund and the Public Service Pension Fund guarantee minimum rates of return. If the funds' annual return is lower than the 2-year bank deposit rate, government has to make up the difference. To avoid unnecessary trouble, the asset allocations of Taiwanese pension funds tend to be conservative. Table 3 demonstrates the asset sizes and asset allocations of three major pension funds in Taiwan. Bank deposits accounts for 25.92% of the Public Service Pension Fund's asset, 44.24% of the Labor Pension Fund, and 57.66% of the Labor Insurance Fund. The proportion of assets invested in short-term fixed income assets are 45.33%, 59.15%, and 58.70% respectively. These numbers, which exceed liquidity needs, are much higher than their international counterparts. Internally managed stock investments represent approximately 20% of these funds' assets.

---

[1][1] Average disposable income per household is NT$703,171 for farmers, and NT$895,568 for non-farmers in 2002. One US dollar equals NT$33.97 at December 31, 2003.

Designated management is mainly domestic stock mandates. Over 99% of funds' assets are invested domestically. Overseas investments are expected to increase gradually over the next few years. Assets of three funds totaled NT$ 1 trillion dollars (USD 30 billion) in 2003, about 10% of Taiwan's GDP.

[Insert Table 3]

With little international diversification, the returns of Taiwanese pension funds are mainly determined by the short-term interest rates and the performance of Taiwan's stock market. Table 4 shows annual returns of the Public Service Pension Fund, the statutory minimum rate (2-year bank deposit interest rate), and returns of the Taiwan Stock Exchange Weighted Index from January 1996 to November 2003. The average annual return is 5.8%. Notice that the correlation between the fund's returns and the stock index returns seems to be much lower than expected. However, the fund's return exceeds the guaranteed return every year. The above phenomenon can be explained easily by the fact that PSPF, as well as other government managed funds report realized returns, instead of changes in the market value of assets. Therefore, it is easy to smooth the return. Accounting for stock value losses since May 2000, the cumulative return of the PSPF will be a little less than that shown in Table 4. The investment performances of the Labor Pension Fund and Labor Insurance Fund are similar to that of PSPF.

[Insert Table 4]

## 5 Economic Status of the Elderly

### 5.1 Population Aging Begins

The population of Taiwan is expected to be fairly stable for the next 50 years. It is projected to grow from 22.2 million in 2000 to 24.6 million in 2030, before decreasing to 22.2 million in 2050. However, the structure of the population will experience drastic changes. The elderly (65 years and above) accounts for 9% of the population in 2000. This number will exceed 10% by 2008, and exceed 20% by 2029. By 2050, elderly people are estimated to represent 29% of the population. Meanwhile, the proportion of the working population (20-64 years) will fall from 62% to 52% by 2050. Evidently, the population will be aging rapidly in the next 50 years (see Table 5 and Figure 1).

[Insert Table 5]

[Insert Figure 1]

A similar trend can be observed from the age ratio. In 2000, Taiwan's dependency ratio is 7.2, almost twice the number of developed countries. Nevertheless, it is estimated to drop to 3.4 by 2025, and 1.8 by 2050, which is not much higher than Japan and Germany, and even lower than Sweden, UK and United States (see Table6).

[Insert Table 6]

### 5.2 Income Sources of the Elderly

Table 7 presents surveys on the income sources of the elderly in Taiwan. The Ministry of Interior Affairs has conducted these surveys since 1986. Since the survey intervals and methodologies are not consistent, the numbers in Table 7 must be read with care. However, it is apparent that the elderly's income dependence on their offspring is decreasing, while the reliance on the social security system is increasing.

[Insert Table 7]

It is a tradition in the Chinese society for the young, in return for their upbringing, to support the living of their elderly parents. For example, it is common for parents to buy or pay the down-payment of the first houses of their grown-up children. Having invested heavily on their children, it is natural for old parents to depend on them. In 1986, as high as two thirds of the elderly's income comes from their children, comparing a mere quarter from his/her retirement pension. However, the portion of income from children has decreased to 47% by 2000, and the trend is expected to persist. One of the explanations for this downturn is that the average number of children has dropped drastically in the last 50 years, which substantially reduces the number of children each elderly can depend on. In addition, new generations are more self-oriented, and less willing to support elderly parents. Now, "save money for the old age." instead of "raise children for the old age." are believed by most Taiwanese.

By 2000, personal savings and pensions on average only constitute 24.7% of income. Some elderly people continue to work after 65 years old, but their income from work is significantly lower than the younger groups (see Table 8). The enacting of the Old-Age Farmers' Allowance Program in 1995, and the monthly allowance thereafter may explain the rise of income from social security. The number will further increase after the Old-Age Citizens' Welfare Allowance is distributed in 2002.

[Insert Table 8]

# 6 Major Issues

## 6.1 Asset Management: A Learning Process

Compared to many developed countries, Taiwanese pension funds are relatively young. Many concepts and optimal practices have not been introduced until the past few years and experiences were acquired through the pain of past mistakes. Nevertheless, there exists an open, willing-to-change atmosphere in Taiwan's pension society, including government officials, scholars, and the asset management industry.

***Fiduciary Duty***

All compulsory pension and insurance funds are currently managed by government entities. Every fund has a supervisory committee and/or a management committee, which holds 4 to 8 annual meetings to determine major issues of the fund, such as annual budget, asset allocation decisions, external manager appointments, and performance evaluation. Committee members consist of representatives from different departments of the government, representatives of the plan participants, scholars, and experts in related fields. Most committee members are invited by the chairperson of the committee, who is usually a high ranking officer of the Central Competent Authority. Pension fund officials who run daily operations are under direct supervision of the committee chairperson.

It often takes a while, or an investment loss, for a committee chairperson to adjust and perceive himself as a pension trustee who holds fiduciary duty solely to the plan participants, and not a government officer responsible for the whole country. Similar to many other Asian countries, this situation stems from the fact that many people in Taiwan still believe in parental government. For example, whenever there is a stock market crash, investors often sound off their request that government should "stabilize" the market. The Four Big Funds: Labor Pension Fund, Labor Insurance Fund, Public Service Pension Fund, and Postal Savings Fund were directed several times in the past decade to purchase stocks while other investors were selling. Some earlier experiences were not bad. Funds realized excess returns when market rebounded several months after their actions. Therefore, many people, including politicians and government officials, really believe that market stabilizing policies are a win-win for pension funds and the country. However, the burst of the high-tech bubble in May 2000, and the world-wide recession till 2002, were too serious for any government or funds to counter. Four Big Funds suffered big losses in their market stabilization activities. After this, people have realized and agreed that "managed by the government" does not translate into "working for the government." Nevertheless, Fiduciary duties are not explicitly stipulated in current pension and social insurance laws. In the proposed revision of the Civil Service Pension Law and the Draft of the Statute of Labor Pension, entities involved in management or supervision of pension funds shall bear fiduciary duties.

***Asset Allocation***

Short-term assets, especially bank deposits, account for a major portion of Taiwanese pension funds' total assets. Aversion of short-term price risk is certainly a key factor of this decision. The Lack of a liquid bond market, on the other hand, is yet another. However, the 40%-60% money market instruments shown in Table 3 have been the results of constant efforts to increase the maturity and return of funds' assets in the past few years. For example, bank deposits accounted for 98% of total assets of the Labor Insurance Fund just 10 years ago. Increasing stock investments brought new challenges, however. The trainings and experiences of pension fund officials are not geared towards equity investment. Moreover, the budget for research resources is very limited. The consensus is that investment requiring extensive resources, such as active stock investment, should mostly rely on external professional managers. PSPF has held many meetings and hearings to prepare for rules regarding designated management. In 2001, PSPF announced the first outsourcing case in Taiwanese pension funds, and gave out a total of NT$15 billion to nine Taiwanese security investment trust companies to invest in the Taiwan Stock market. Other pension funds followed in a few months. However, the first round of designated management was not very successful. Pension funds have expected too much from external managers. For instance, the return target was set to achieve an average return of 12% or more, and also beat the Taiwan Stock Exchange Index in the 2-year period. Anyone familiar with the basic concepts would know that it's very difficult to meet both absolute and relative return targets. Interestingly, every asset management company applying for the business explained confidently how it would achieve both targets. Without a reasonable target and rigorous risk control operations, most external managers ended up with negative returns, while the stock index had slight gains for the same period. Pension funds and asset management companies learned fast from the first lesson. The return targets became more realistic and the performances of external managers exhibited more stability. Now, pension funds are the most important clients for asset management companies in Taiwan.

Like many emerging markets, Taiwan's stock market is very volatile with a standard deviation of annual return at around 50%. International diversification would greatly improve the return/risk ratio for Taiwanese pension funds. However, the Central Bank (authority on foreign exchange) is not fond of pension funds investing overseas, worrying that pension funds' international money flows will cause unnecessary disturbances for the Bank's foreign exchange operations. In 2002, after years of fighting and negotiations, Central Bank finally approved a US$500 million FX quota for PSPF to invest abroad. PSPF announced its request for proposals to international asset management companies in August 2003. After a long and rigorous selection process, five international asset management companies, each with a US$100 million mandate, were selected in December 2003. An international custodian bank was also selected. Other Taiwanese pension funds are expected to start their international diversifications in 2004.

### 6.2 Under-Funding

Currently, the contribution ratio is much lower than the actuarially fair ratio for almost every pension and social insurance fund in Taiwan. As Table 2 demonstrates, when 76.3% of PSPF pension is paid monthly (the expected mix), the actuarially fair contribution rate is 26.4%, which is much higher than the current 8.9%, or 12% rate by 2006. Unfunded liabilities for the PSPF are estimated to be NT$717 billion by the end of 2002. Table 9 shows the Labor Insurance Fund's annual balances and estimated payments if all eligible workers apply for their retirement payments then. The cash balances accumulated fast after 1994 when National Health Insurance included medical expenses. The Fund's balance peaked at 2001 totaling NT$484 billion. Cash outflows exceed inflows after 2002, and the fund size begins to shrink. The 2002 cash balance of NT$457 billion is insufficient to meet the retirement payments due, which totals NT$658 billion. If all eligible workers who have not applied for their retirement payments rush to apply, Labor Insurance Fund will run out of cash immediately. According to the 2003 actuary report, the present value of the Fund's unfunded liabilities is NT$1.9 trillion. The combined liabilities of the Public Service Pension Fund and the Labor Insurance Fund sum up to NT$2.6 trillion, which is 26% of Taiwan's GDP or 200% of the government revenue in 2002.2[2]

[Insert Table 9]

### 6.3 New Labor Pension System Needed

As stated above, to obtain the retirement payment, a worker must have worked for 25 years or reached the age of 55 and have worked for 15 years for the same employer. The retirement benefit is neither portable nor vested. The average life of firms in Taiwan is 13 years, while employees' average length of service in the same firm is 8.6 years. Most employees of small to medium firms do not believe that they

---

2[2] PSPF assumes 3.65% discount rate, and 1% increase in the discount rate reduces the under-funding amount by 16%. Labor Insurance Fund assumes 3.5% discount rate.

can actually receive the retirement payments as stated in the Labor Standard Law. By the same token, many employers do not believe they actually have to pay the retirement payments either. Therefore, about 80% of firms do not contribute to the labor pension fund and fines for noncompliance are not significant enough to provide employers with incentives. Even for those employers who do contribute to the Labor Pension Fund, they often merely contribute 2% of employees' salary to meet the minimum requirement, which is apparently not enough for future payments. Some employers argue that they are going to disburse the retirement payments eventually; however, they are unwilling to contribute more money to the Fund whose returns are usually less than their costs of capital. Since many employers are not prepared for massive retirement payments, it is not uncommon to see layoffs, plants shut-down, or even terminating the entire business few years before employees are eligible for retirement payments. Moreover, workers over 50 years of age have experienced great difficulties of locating new jobs, partly because potential employers are not willing to bear the up-coming retirement costs.

## 7 Future Developments

### 7.1 Making a New Labor Pension Law

Problems of the Labor Pension system surfaced after only a few years following the enactment of the Labor Standards Law in 1985. Research on a new system has been conducted since 1990. After extensive research and debates, the Executive Yuan prepared the Draft of Statute of Labor Pension in December 2001. It was then submitted to the Legislative Yuan for approval. According to the Draft, the new system will be a defined contribution, portable pension scheme. Employers' shall contribute 6% of their employees' salaries each month. A labor can choose among three plans: Individual Retirement Accounts, Additional Annuity, and Other Annuity provided by insurance companies. However, the Draft does not explicitly stipulate the definition of "qualified investment products", "qualified asset management companies," and even who, labor or government, has the right the choose investment products.

Individual Retirement Accounts is similar to the 401(k) plan in the United States. The amount of pension when a labor receives will depend on the investment returns in the accumulation period. Additional Annuity means annuity in addition to the National Annuity. But since National Annuity is still in its preparation phase, it is somewhat odd to have an Additional Annuity coming out first. Under its design, each year of service will translate into 0.8% replacement ratio. A labor participating for 30 years will receive an annuity equivalent to 24% of average wages, which are linked to the wage level of workers who are contributing to the plan then. If actuarial reports indicate that the plan is under-funded, participants will have to make additional contributions. It is a DC plan wearing a DB coat. Some experts have commented that the 0.8% replacement ratio is not likely to be achieved without labors' additional contributions.

Other Annuity is offered as group insurance, and only offered to companies hiring more than 300 people. There are rumors that advocates of the Additional Annuity plan lobbied hard to put restrictions on other plans so that enough people choose the Additional Annuity, which they believe, is immune to the financial market volatility and best fits the spirit of social insurance.[3][3]

If a current worker is satisfied with the pension system under the Labor Standard Law, he/she can choose to stay in the original plan. So there are in fact four plans to choose from. Most people consider the proposed scheme too complicated, and very few actually know how to compare among different plans. The fact that a law offers so many alternatives reflects compromises to accommodate different pension concepts and industry interests. Thus, only few are fully satisfied with the Draft, and there exists at east 10 other alternative drafts in the Legislative Yuan.

While most experts expect a long battle before a draft can be examined by the Labor, Welfare and

---

3[3] Labor intensive industries have been moving out of Taiwan since 1980s, which has contributed to higher unemployment rate and widened income inequality. The ratio of the highest 20% average household income to the lowest 20% households has increased from 4.18 in 1980 to 6.16 in 2002. Social equity has become an important issue in Taiwan.

Environment Committee, a new draft initiated by legislator Fu-Hsiung Shen quietly went through examination in December 31, 2003. Shen's draft eliminates the Additional Annuity plan, adds minimum return guarantee to the Individual Retirement Account plan and Other Annuity plan, provides tax deductions on employees' voluntary contributions up to 6% of their salaries, and converts Individual Retirement Account balance into annuity when labor retires.

This draft is more comprehensive, and also addresses many concerns over previous drafts. However, there are still issues to be resolved. For example, participants of the Individual Retirement Account cannot determine their investment, which is managed by the government. It is difficult to determine an uniform asset allocation for all participants who have different ages, level of income, attitude towards risk, and investment objectives. Under a DC scheme, participants bear the consequences of their investment decisions. Therefore, it is not reasonable for the government to dominate the investment decisions, even though a minimum return is guaranteed. This also lays enormous pressure on fund officials since everybody is watching closely. Yet another problem is translating the accumulated retirement benefits of the old system to the new one. If a labor has to wait until his/her time of retirement to claim the pension under the old system, it is unlikely that he/she will be able to get the payment. If the employer has to pay the accumulated benefits when the new law enacts, many firms will go bankrupt. Finally, tax officials strongly oppose tax reductions on personal contribution, worrying that significant tax revenue cuts would worsen the government budget deficit.

Shen's draft is expected to be submitted to the full session of the Legislative Yuan for the second and third read after the March 20th presidential election. It is very likely the new Labor Pension Law will be promulgated before the end of 2004.

### 7.2 National Pension

Without first-pillar pension, Taiwan has been relying on the second-pillar and third-pillar pensions, along with family supports, to fund the living of the elderly. In 1993, Executive Yuan conducted a study on the National Pension. In 1995, the Executive Yuan decided to pursue the National Health Insurance first, and the National Pension Plan was postponed. In 1998, a blueprint of National Pension was brought up, and the social insurance program was scheduled to launch by 2000. However, the devastating earthquake in 1999, which entailed several hundred billion dollars to rebuild the disastrous area, again postponed the National Pension. Every time the plan is postponed, it would necessitate a new study to re-start the plan. This usually entails an examination of the economic condition of the country, the financial capability of the government, the structure of population, the experiences of other countries, or even the ruling party, which may have changed through time.

Taiwanese government had enjoyed a long period of budget surplus until the turn of the century (see Table 10). People start to ask more from the government as Taiwan's economy develops. Among those demands, social welfare and environmental protection are especially costly. With one of the lowest tax burden in the world, Taiwanese government can not afford an infrastructure of developed countries. Moreover, the economic growth has slowed down significantly in recent years, which reduced government's tax revenues and increased government's spending on social security. Unfunded pension liabilities mentioned in the previous section will put further pressure on future government budget. Table 11 calculates the assets needed to fully fund the nation's elderly with 50% replacement ratio. In 2000, pension assets needed amounts to 128% of GDP. The number will increase to 176% in 2020 and 252% in 2050. On the other hand, total pension assets accumulated are worth less than 10% of GDP in 2003. With government budget constraints and an aging population, it will be difficult to launch a large-scale national pension program.

[Insert Table 10]

[Insert Table 11]

## 8 Concluding Remarks

The new Labor Pension Law is expected to be passed in 2004. There may be additional revisions to the draft before the law is enacted, but major changes, including shifts from defined benefit to defined contribution, and from non-portable to portable, are almost certain. These changes reflect the problems that Taiwan's compulsory occupational pension and social insurance system are currently facing. The huge under-funding of the current scheme has to be accounted for in the future, by increasing contributions, extending retirement ages, cutting benefits, or increasing government subsidies. One way or another, younger generations will bear most of the costs. The aging of the population will undoubtedly further magnify the problem.

A defined contribution system seems to exhibit inter-generational equity features, which provides young people more incentives to participate in the pension program. In addition, it also relieves the government from a potential financial black hole commonly observed in defined benefit pensions or social insurance programs managed by the government. A first-pillar national pension program may be launched in the next few years. Given the constraints mentioned above, the program is not likely to be large-scaled, providing high replacement ratio for the elderly.

Taiwan's political parties compete fiercely in recent years, and there is no sign of mitigation in the foreseeable future. When politicians are generally short-term oriented, reforms for the social security and pension systems become slow and unpredictable, sometimes even going backwards. However, with the general publics' increasing awareness of pension needs, along with significant efforts made by the pension society, pension reforms will hopefully be on a right track.

Taiwan

**Reference**


Aggarwal, Raj and Andrea L. Demaskey (1997), "Cross-Hedging Currency Risks in Asian Emerging Markets Using Derivatives in Major Currencies," *The Journal of Portfolio Management*, Vol. 23, No. 3, pp. 88-95.

Allianz Dresdner Asset Management (2003), *European Pensions: Reform Trends and Growth Opportunities*, Allianz Dresdner Asset Management, Munchen.

Bierman, Harold, Jr. (1997), "Portfolio Allocation and the Investment Horizon," *Journal of Portfolio Management*, Vol. 23, No. 4, pp. 51-55.

Blake, D. (1995), *Pension Schemes and Pension Funds in the United Kingdom*, Oxford University Press, Inc., New York.

Blake, D., Lehmann, B., and Timmermann, A. (1999), "Asset Allocation Dynamics and Pension Fund Performance,"*Journal of Business*, Vol. 72, pp. 429-447.

Blake, D., Lehmann, B., and Timmermann, A. (2002), "Performance Clustering and Incentives in the UK Pension Fund Industry," Journal of Asset Management, Vol. 3, pp. 173-194.

Bonoli, G. (2000), *The Politics of Pension Reform: Institutions and Policy Change in Western Europe*, Cambridge University Press, Cambridge.

Booth, P., and Y. Yakoub (2000), "Investment Policy for Defined-Contribution Pension Scheme Members Close to Retirement: An Analysis of the "Lifestyle" Concept," *North American Actuarial Journal*, Vol. 4, No. 2, pp.1-19.

Bowers, N.L., Gerber, H.U., Hickman, J.C., Jones, D.A., Nesbitt, C.J. (1982), "Notes on the dynamics of pension funding, " *Insurance: Mathematics and Economics*, Vol. 1, pp. 261-270.

Brinson, Gary P., Brain D. Singer and Gilbert L. Beebower (1991), "Determinants of Portfolio Performance II: An Update," *Financial Analysts Journal*, Vol. 47, No. 3, pp. 40-48.

Chen, T. A. (2000), *The Effects of National Pension to Corporate Management*, Chinese National Association of Industry and Commerce, Taiwan.

Chang, S.C. (1999), "Optimal Pension Funding Through Dynamic Simulations: the Case of Taiwan Public Employees Retirement System," *Insurance: Mathematics and Economics*, Vol. 24, pp. 187-199.

Cheng, C. H. (2002), "On Establishing a System of Financial Security Benefits for the Elderly in Taiwan," *Insurance Monograph*, Vol. 18, No. 2, pp. 169-191.

Chiu, S. B. (1997), "A Study on the Asset Allocation Strategies of Taiwan's Pension Funds," *Review of Securities and Futures Markets*, Vol. 9, No. 2, pp. 29-57.

Chu, Y. M. (2001), "International Asset Allocation Algorithm for Pension Funds in Taiwan," Graduate Institute of Finance, National Taiwan University.

Clark, G. L. (2000), *Pension Fund Capitalism*, Oxford University Press, Inc., New York.

Clowes, M. J. (2000), *The Money Flood: How Pension Funds Revolutionized Investing*, John Wiley & Sons, Inc., New York.

Coggin, T. Daniel, Frank J. Fabozzi and Shafiqur Rahman (1993), "The Investment Performance of U.S. Equity Pension Fund Mangers: An Empirical Investigation," *The Journal of Finance*, Vol. 48, No. 3, pp. 1039-1055.

Davis, E. P. (1995), *Pension Funds: Retirement-Income Security, and Capital Markets An International Perspective*, Oxford University Press, Inc., New York.

Disney, R. (2000), "Crises in Public Pension Pregrammes in OECD Countries: What Are the Reform Options?"*Economic Journal*, Vol. 100, pp. F1-F23.

Fabozzi, F. and Konoshi, A. eds., (1991), *Asset-Liability Management*, Probus, Chicago.

Finkelstein, A. and Poterba, J. (2002), "Selection Effects in the United Kingdom Individual Annuities Market,"*Economic Journal*, Vol. 112, pp. 28-50.

Haberman, S. and Sung, J.H. (1994), "Dynamic Approaches to Pension Funding," *Insurance: Mathematics and Economics*, Vol. 15, pp. 151-162.

Holzmann, R. (2000), “The World Bank Approach to Pension Reform,” International Social Security Review, Vol. 53, No. 1, pp. 11-31.

Huang, J. L. (1998), “Asset Allocation of Taiwanese Pension Funds,” *Review of Securities and Futures Markets*, Vol. 10, No. 3, pp. 135-161.

Khorasanee, M. Z. (1996), “Annuity Choices for Pensioners,” Journal of Actuarial Practice, Vo. 4, pp. 229-255.

Ko, M. S. (2002), “Some Concepts about Social Insurance Pension and Private Pension Scheme,” *Insurance Issues and Practices*, Vol. 1, No. 1, pp. 1-9.

Ko, M. S. (2002), *Social Insurance*, Chinese Social Insurance Association, Taiwan.

Lakonishok, J., A Shleifer, R. Thaler, and R. Vishny (1991), “Window Dressing By Pension Fund Managers,” *Bahavioral Finance*, Vol. 81, No. 2, pp. .

Lakonishok, J., A. Shleifer, and R. Vishny (1992), “The Structure and Performance of the Money Management Industry,” Brookings Paper on Economic Activity: Microeconomics, pp. 339-391.

Liang, C. T., and Han, H. W. (2002), “The Financial Impact of the Expanding National Health Insurance Premium Base and Increasing Premium Rate Proposals on the Insured Families in Taiwan,” *Insurance Monograph*, Vol. 18, No. 2, pp.145-168.

Lin, C. J. (2003), *Actuary’s and Financial Report of Labor Insurance Old-Age Payment*, Bureau of Labor Insurance, Taiwan.

Mercer Human Resource Consulting (2003), *2nd Actuary’s Report of Management Board of Public Service Pension Fund*, Management Board of Public Service Pension Fund, Taiwan.

Miao, C. Y. (2001), “Optimal Contribution Rate and Asset Allocation of Taiwanese Pension Funds,”*Review of Securities and Futures Markets*, Vol. 13, No. 3, pp. 100-130.

Miao, C. Y., and Chiu, S. B. (2002), “A Study on the Dynamic Asset Allocation Strategies of Pension Fund under Fix Contribution Rates,” *Taiwan Academy of Management Journal*, Vol. 2, No. 2, pp. 77-98.

Mitchell, O. S., Poterba, J. M. Warshawaky, M. J. and Brown, J. R. (1999), “New Evidence on the Money’s Worth of Individual Annuities,” *American Economic Review*, Vol. 89, pp. 1299-1318.

OECD (1998), *Maintaining Prosperity in an Aging Society*, Paris: OECD.

Reisen, H. (2000), *Pensions, Savings and Capital Flows: From Aging to Emerging Markets*, Edward Elgar Publishing, Inc., Massachusetts.

Shiu, Y. M. (2002), “Labor Retirement Pension Schemes and Their Innovation,” *Insurance Issues and Practices*, Vol. 1, No. 1, pp.57-76.

Takayama, N. (2002), “Pension Reform of PRC: Incentives, Governance and Policy Options,” *The ADB Institute 5th Anniversary Conference on Challenges and New Agenda for PRC*, Tokyo.

Takayama, N. eds., (2003), Taste of Pie: Searching for Better Pension Provisions in Developed Countries, Maruzen Co., Ltd., Tokyo.

Tu, C. C. (2002), “The Comparison of Annuity Polices in Taiwan,” I*nsurance Issues and Practices*, Vol. 1, No. 1, pp. 77-89.

Wang, J. L. (2002), “The Impacts of Employer Pension System on Retirement Income: The Analysis of the Revolutions in the United States and Taiwan,” *Insurance Issues and Practices*, Vol. 1, No. 1, pp.27-55.

World Bank (1994), *Averting the Old-Age Crisis*, Oxford University Press, Inc., New York.

Wu, C. Y. (2003), “Estimating Mobility Probabilities of Income States in Taiwan Population,” Graduate Institute of Finance, National Taiwan University.

Yu, S. M. (1999), *Major Issues on the Systems and Laws of the Long-Term Social Funds in Taiwan*, Council for Economic Planning and Development, Taiwan.

Taiwan

Table 1

Summary Statistics for Participants of Various Pension Plans in Taiwan.（2002）

| | Public Service Pension Fund | Government Employees' and School Staffs' Insurance | Labor Insurance | Labor Pension | Old-Age Farmers' Allowance Program | Old-Age Citizens' Welfare Allowance |
|---|---|---|---|---|---|---|
| Total Population （A） | 22,520,776 | 22,520,776 | 22,520,776 | 22,520,776 | 22,520,776 | 22,520,776 |
| * Working Population （B） | 9,450,000 | 9,450,000 | 9,450,000 | 9,450,000 | 9,450,000 | 9,450,000 |
| Number of Participants （C） | 617,543 | 626,652 | 7,857,842 | 2,900,000 | 670,000 | NA |
| （C）/（A） | 2.74% | 2.78% | 34.89% | 12.88% | 2.98% | NA |
| （C）/（B） | 6.53% | 6.63% | 83.15% | 30.69% | 7.09% | NA |

Source：Management Board of Public Service Pension Fund; Supervisory Board of Labor Pension Fund; Supervisory Board of Labor Insurance Fund; Directorate-General of Budget, Accounting & Statistics (DGBAS) Executive Yuan, Taiwan, R.O.C.

* Working population increases to 10.2 million if self-employed and unemployed labor are added.

Taiwan

Table 2

PSPF Actuarially Fair Contribution Ratios for Different Mix of Lump-sum and Monthly Payment.

| Different Participants | % of Pension Paid in Monthly Payment | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0% | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 76.3% | 80% | 90% | 100% |
| Original Participants | 12.7% | 14.9% | 17.1% | 19.3% | 21.7% | 24.0% | 26.2% | 28.5% | 29.9% | 30.7% | 33.0% | 35.2% |
| New Participants | 10.9% | 12.4% | 14.0% | 15.5% | 17.1% | 18.6% | 20.2% | 21.7% | 22.7% | 23.3% | 24.8% | 26.4% |
| Combined Participants | 11.9% | 13.7% | 15.6% | 17.5% | 19.5% | 21.4% | 23.3% | 25.2% | 26.4% | 27.1% | 29.1% | 31.0% |

Source：2nd Actuary's Report, Management Board of Public Service Pension Fund, pp.14.

Taiwan

Table 3

Asset sizes and asset allocations of three major pension funds in Taiwan.（Unit：NT$1）

| Distribution | Public Service Pension Fund（2003/10） | | Labor Pension Fund（2003/09） | | Labor Insurance Fund（2003/08） | |
|---|---|---|---|---|---|---|
| | Balance | Percentage | Balance | Percentage | Balance | Percentage |
| Domestic and Overseas Bonds | 16,002,931,326 | 7.17% | 5,287,432,189 | 1.66% | 32,463,962,373 | 7.10% |
| Bank Deposits | 57,863,227,645 | 25.92% | 141,054,412,561 | 44.24% | 263,688,352,741 | 57.66% |
| Commercial Papers | 43,317,993,777 | 19.41% | 47,547,489,677 | 14.91% | 4,766,706,790 | 1.04% |
| Stocks | 45,735,815,511 | 20.50% | 71,313,572,240 | 22.37% | 88,026,518,582 | 19.25% |
| Loan | 7,600,000,000 | 3.40% | 41,767,514,753 | 13.10% | 40,273,594,412 | 8.81% |
| Designated Management | 52,517,418,429 | 23.53% | 11,832,687,740 | 3.71% | 26,039,067,330 | 5.69% |
| Others | 165,243,489 | 0.07% | - | 0.00% | 2,050,387,494 | 0.45% |
| Total | 223,202,630,177 | 100% | 318,803,109,160 | 100% | 457,308,589,722 | 100% |

Source：Management Board of Public Service Pension Fund; Supervisory Board of Labor Pension Fund; Supervisory Board of Labor Insurance Fund.

Taiwan

Table 4

Returns of the Public Service Pension Fund and the Taiwan Stock Exchange Index.（Unit：NT$100,000,000）

| Year | Realized earnings（A） | Realized earnings rate（B） | Statutory minimum rate of earnings（C） | Realized earnings rate less statutory minimum rate（B-C） | Return of TAIEX |
|---|---|---|---|---|---|
| 1996 | 4.83 | 7.780% | 6.930% | 0.850% | 34.02% |
| 1997 | 34.66 | 12.420% | 6.292% | 6.128% | 18.08% |
| 1998 | 52.86 | 9.119% | 6.313% | 2.806% | -21.60% |
| 1999 | 73.98 | 8.181% | 5.846% | 2.335% | 31.63% |
| 2000 | 196.92 | 9.973% | 5.142% | 4.831% | -43.91% |
| 2001 | 67.13 | 4.720% | 4.016% | 0.704% | 17.14% |
| 2002 | 45.43 | 2.594% | 2.246% | 0.348% | -19.79% |
| 2003/11 | 37.35 | 2.023% | 1.575% | 0.448% | 29.63% |
| Total | 513.16 | 5.819% | 4.795% | 1.023% | |

Source：Management Board of Public Service Pension Fund.

Taiwan

Table 5

Taiwan’s Demography Forecast（2000 ~ 2050）（Unit：1,000 people）

| Year ¥ Age Group | 0 ~ 19 | 20 ~ 64 | 65 ~ |
|---|---|---|---|
| 2000 | 6,578 | 13,777 | 1,921 |
| 2005 | 6,101 | 14,590 | 2,203 |
| 2010 | 5,926 | 15,176 | 2,459 |
| 2015 | 5,692 | 15,590 | 2,803 |
| 2020 | 5,475 | 15,412 | 3,551 |
| 2025 | 5,255 | 15,003 | 4,378 |
| 2030 | 4,985 | 14,508 | 5,185 |
| 2035 | 4,748 | 14,012 | 5,797 |
| 2040 | 4,578 | 13,518 | 6,164 |
| 2045 | 4,437 | 12,792 | 6,566 |
| 2050 | 4,301 | 12,094 | 6,809 |

Source：U.S. Bureau of the Census（forecast）; Directorate-General of Budget, Accounting & Statstics (DGBAS), Executive Yuan, Taiwan, R.O.C.（2000）

Taiwan
Table 6
Dependency Ratios of Selected Countries

| Countries | 2000 | | | 2025 | | | 2050 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Age Ratio | | A/B | Age Ratio | | A/B | Age Ratio | | A/B |
| | 20-64(A) | 65+(B) | | 20-64(A) | 65+(B) | | 20-64(A) | 65+(B) | |
| Taiwan | 61.8% | 8.6% | 7.2 | 61.0% | 17.8% | 3.4 | 52.1% | 29.3% | 1.8 |
| Japan | 62.2% | 17.1% | 3.6 | 54.9% | 28.0% | 2.0 | 48.5% | 34.3% | 1.4 |
| China | 61.5% | 6.9% | 8.9 | 62.0% | 13.7% | 4.5 | 55.5% | 24.4% | 2.3 |
| Germany | 62.3% | 16.4% | 3.8 | 57.9% | 24.6% | 2.4 | 52.1% | 30.0% | 1.7 |
| Sweden | 58.6% | 17.2% | 3.4 | 55.8% | 23.2% | 2.4 | 54.4% | 25.7% | 2.1 |
| U.K. | 59.2% | 15.6% | 3.8 | 58.7% | 20.4% | 2.9 | 54.7% | 25.7% | 2.1 |
| U.S.A. | 59.0% | 12.4% | 4.8 | 55.5% | 18.2% | 3.1 | 53.4% | 20.6% | 2.6 |

Source：U.S. Bureau of the Census.

Taiwan

Table 7

Survey on the Sources of Income of the Elderly

| Year | Offspring | Personal Salary | Personal Pension | Personal or Spouse's Savings | Spouse's Salary or Pension | Rent, Interest etc. | Stocks, Real Estate etc. | Relatives' Support | Social Security | Others | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1986 | 65.8 | - | 25.2 | - | 4.6 | - | - | 2.0 | 1.2 | 1.2 | 100 |
| 1987 | 64.0 | - | 31.9 | - | - | - | - | 1.4 | 1.7 | 1.0 | 100 |
| 1988 | 61.8 | - | - | 34.8 | - | - | - | 1.3 | 1.1 | 1.0 | 100 |
| 1989 | 58.4 | 8.2 | 11.9 | 15.3 | 2.7 | 0.8 | 0.01 | 0.9 | 1.2 | 0.6 | 100 |
| 1991 | 52.4 | 8.1 | 16.1 | 15.3 | 2.7 | 1.5 | - | 1.1 | 1.6 | 0.7 | 100 |
| 1993 | 52.3 | 6.6 | 14.8 | 17.2 | 4.2 | 1.9 | 0.1 | 0.9 | 1.6 | 0.4 | 100 |
| 1996 | 48.3 | 7.3 | 17.6 | 13.2 | 4.3 | 2.0 | 0.1 | 0.4 | 6.4 | 0.5 | 100 |
| 2000 | 47.1 | 13.7 | 15.4 | 9.3 | - | - | - | - | 12.9 | 1.6 | 100 |

Source：Survey of the Elderly, Ministry of the Interior, Executive Yuan, Taiwan, R.O.C.

Taiwan

Table 8

Average Monthly Salary of Different Age Groups（2002/05）

Male

| Age Group¥ Monthly Salary | > N.T. $ 50,000(%) | N.T.$ 30,000 ~49,999 (%) | N.T.$ 10,000 ~29,999 (%) | < N.T. $ 10,000 (%) | N.T. $ 0 (%) |
|---|---|---|---|---|---|
| 25 ~ 29 | 4.602 | 36.770 | 43.547 | 3.714 | 11.368 |
| 30 ~ 34 | 10.595 | 44.428 | 36.422 | 2.960 | 5.595 |
| 35 ~ 39 | 18.167 | 43.708 | 30.654 | 2.503 | 4.968 |
| 40 ~ 44 | 19.767 | 40.756 | 31.466 | 3.358 | 4.654 |
| 45 ~ 49 | 20.206 | 34.650 | 33.184 | 4.935 | 7.024 |
| 50 ~ 54 | 16.614 | 27.567 | 36.364 | 7.979 | 11.477 |
| 55 ~ 59 | 11.173 | 18.268 | 34.639 | 12.923 | 22.997 |
| 60 ~ 64 | 7.339 | 9.863 | 27.615 | 18.341 | 36.841 |
| 65 ~ 69 | 2.583 | 6.708 | 23.795 | 21.744 | 45.170 |
| 70 ~ 74 | 1.764 | 4.551 | 16.667 | 20.289 | 56.729 |
| 75 ~ 79 | 0.786 | 4.160 | 10.134 | 18.902 | 66.018 |
| 80 ~ | 1.452 | 1.226 | 6.056 | 16.796 | 74.469 |

Female

| Age Group¥ Monthly Salary | > N.T. $ 50,000(%) | N.T.$ 30,000 ~49,999 (%) | N.T.$ 10,000 ~29,999 (%) | < N.T. $ 10,000 (%) | N.T. $ 0 (%) |
|---|---|---|---|---|---|
| 25 ~ 29 | 1.386 | 13.704 | 43.145 | 4.551 | 37.214 |
| 30 ~ 34 | 2.942 | 13.870 | 33.482 | 7.548 | 42.158 |
| 35 ~ 39 | 3.488 | 12.361 | 33.354 | 8.831 | 41.966 |
| 40 ~ 44 | 4.564 | 11.161 | 34.113 | 8.284 | 41.878 |
| 45 ~ 49 | 4.401 | 9.048 | 29.505 | 9.819 | 47.227 |
| 50 ~ 54 | 3.097 | 4.029 | 23.001 | 12.144 | 57.728 |
| 55 ~ 59 | 2.026 | 3.126 | 15.603 | 13.389 | 65.856 |
| 60 ~ 64 | 1.590 | 1.996 | 10.077 | 12.730 | 73.607 |
| 65 ~ 69 | 0.691 | 1.151 | 5.394 | 12.330 | 80.435 |
| 70 ~ 74 | 0.307 | 1.096 | 2.972 | 12.491 | 83.135 |
| 75 ~ 79 | 0.188 | 0.992 | 2.203 | 9.625 | 86.992 |
| 80 ~ | 0.362 | 0.246 | 1.380 | 6.044 | 91.969 |

Source：Wu, C. Y. (2003), “ Estimating Mobility Probabilities of Income States in Taiwan Population, ” Graduate Institute of Finance, National Taiwan University.

Taiwan

Table 9

Labor Insurance Fund's Cash Balances and Estimated Pension Payments Due（Unit：NT$ 10,000）

| Year | Revenue | Expenditure | Balance | Labor Insurance Fund | Estimated Pension Payments Due |
|---|---|---|---|---|---|
| 1992（1991/07/01~1992/06/30） | 10,019,996 | 9,674,242 | 345,754 | 6,540,279 | 13,156,902 |
| 1993（1992/07/01~1993/06/30） | 11,971,467 | 11,058,065 | 913,402 | 7,939,386 | 17,922,911 |
| 1994（1993/07/01~1994/06/30） | 13,982,960 | 13,373,102 | 609,858 | 10,270,776 | 21,119,080 |
| 1995（1994/07/01~1995/06/30） | 14,874,760 | 13,418,969 | 1,455,791 | 10,892,133 | 17,405,237 |
| 1996（1995/07/01~1996/06/30） | 14,033,987 | 12,281,950 | 1,752,037 | 17,065,003 | 19,177,982 |
| 1997（1996/07/01~1997/06/30） | 14,596,173 | 14,303,783 | 292,390 | 24,267,052 | 22,019,066 |
| 1998（1997/07/01~1998/06/30） | 15,885,461 | 15,885,461 | 0 | 30,989,120 | 25,267,007 |
| 1999（1998/07/01~1999/06/30） | 16,935,357 | 16,935,357 | 0 | 37,977,902 | 30,624,870 |
| 2000（1999/01/01~2000/06/30） | 28,279,115 | 28,279,115 | 0 | 44,656,846 | 42,567,255 |
| 2001（2000/07/01~2001/06/30） | 17,625,928 | 17,625,928 | 0 | 48,367,488 | 53,968,650 |
| 2002（2001/07/01~2002/06/30） | 19,295,751 | 19,295,751 | 0 | 45,746,867 | 65,781,113 |

Source：Lin, C. J. (2003), *Actuary ' s and Financial Report of Labor Insurance Old-Age Payments*,

Bureau of Labor Insurance, Taiwan.

Taiwan

Table 10

Government Revenue, Expenditure and Surplus（Deficit）of Taiwan, R.O.C.（Unit：NT$1）

| Year | Revenue | Expenditure | Surplus（Deficit） |
|---|---|---|---|
| 1997（1996/07/01~1997/06/30） | 1,153,325,585,937.00 | 1,153,325,585,937.00 | 0 |
| 1998（1997/07/01~1998/06/30） | 1,296,725,824,543.87 | 1,189,848,539,388.00 | 106,877,285,155.87 |
| 1999（1998/07/01~1999/06/30） | 1,284,760,933,337.03 | 1,282,183,102,956.00 | 2,577,830,381.03 |
| 2000（1999/01/01~2000/06/30） | 2,035,434,797,500.29 | 2,230,757,964,012.00 | -195,323,166,511.71 |
| 2001（2000/07/01~2001/06/30） | 1,417,688,510,289.47 | 1,560,178,254,655.00 | -142,489,744,365.53 |
| 2002（2001/07/01~2002/06/30） | 1,305,741,429,004.88 | 1,552,162,107,585.00 | -246,420,678,580.12 |

Source：Directorate-General of Budget, Accounting & Statstics (DGBAS), Executive Yuan, Taiwan, R.O.C.

Taiwan

Table 11

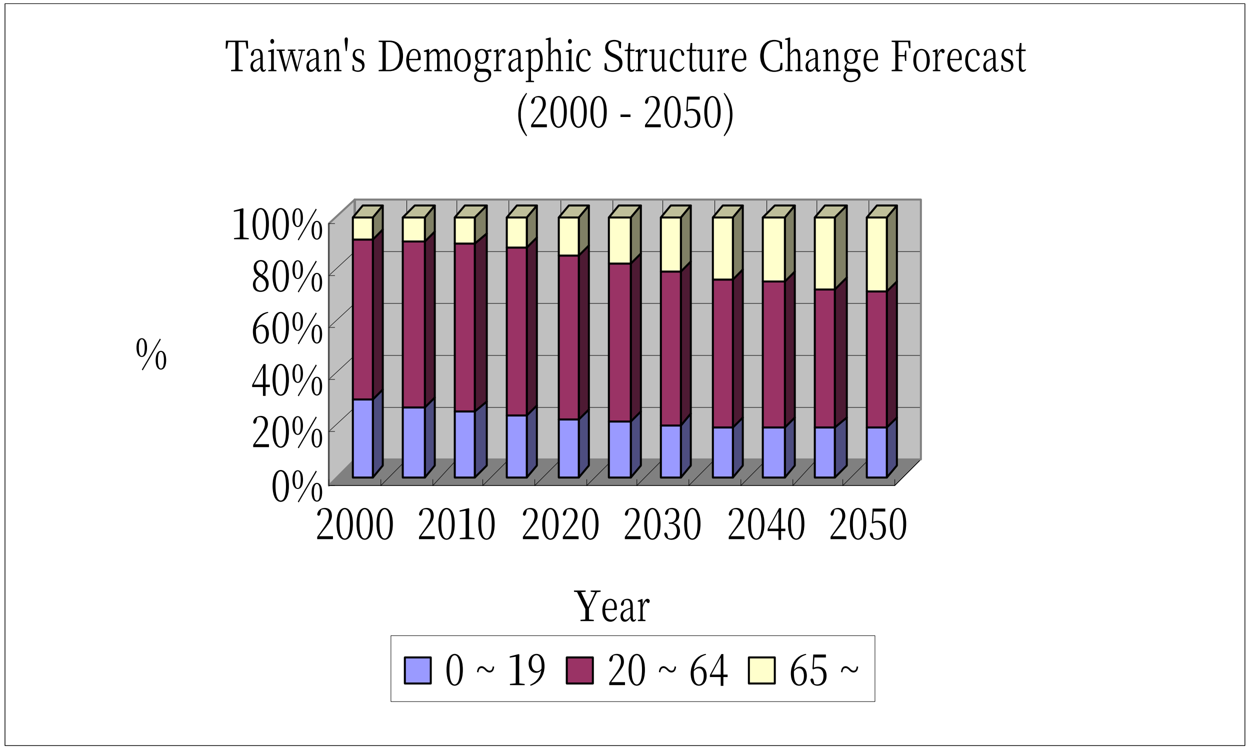
Pension Assets Needed to Support a 50% Replacement Ratio（Unit：% of GDP）（2004/02/04）

| Year | Assets before Retirement | Assets after Retirement | Total | Real Reserve |
|---|---|---|---|---|
| 1990 | 84% | 35% | 119% | 0% |
| 2000 | 79% | 46% | 125% | 4% |
| 2010 | 76% | 53% | 129% | NA |
| 2020 | 77% | 75% | 153% | NA |
| 2030 | 83% | 117% | 200% | NA |
| 2040 | 87% | 149% | 237% | NA |
| 2050 | 93% | 184% | 278% | NA |

Source：Financial Integration Consulting & Research Inc.

Taiwan

Figure 1
Taiwan's Demographic Structure Change Forecast (2000-2050)




Source：U.S. Bureau of the Census（forecast）; Directorate-General of Budget, Accounting & Statstics (DGBAS), Executive Yuan, Taiwan, R.O.C.（2000）